Complete Summary

GUIDELINE TITLE

Growth, body composition, and metabolism.

BIBLIOGRAPHIC SOURCE(S)

New York State Department of Health. Growth, body composition, and metabolism. New York (NY): New York State Department of Health; 2007 Nov. Various p. [24 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: New York State Department of Health. Growth, body composition, and metabolism. New York (NY): New York State Department of Health; 2004. 25 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Human immunodeficiency virus (HIV) infection
- HIV- and antiretroviral therapy-associated disturbances in growth, body composition and metabolism including:
  - Growth abnormalities
  - Neuroendocrine disorders
  - Gastrointestinal infections and malabsorption
  - Lipodystrophy and abnormalities of lipid metabolism
  - Abnormalities of glucose metabolism
  - Bone disorders

GUIDELINE CATEGORY

Evaluation
Management
Risk Assessment
Screening

CLINICAL SPECIALTY

Allergy and Immunology
Endocrinology
Family Practice
Gastroenterology
Infectious Diseases
Nutrition
Pediatrics

INTENDED USERS

Advanced Practice Nurses
Dietitians
Health Care Providers
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

To develop guidelines for management of disturbances in growth, body composition, and metabolism in human immunodeficiency virus (HIV)-infected children and adolescents

TARGET POPULATION

Human immunodeficiency virus (HIV)-infected children and adolescents with disturbances in growth, body composition, and metabolism

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Screening/Risk Assessment

1. Nutritional and dietary assessment
2. Weight and height (or length) measurements and body composition measurements
3. Assessment of potentially reversible causes of malnutrition
4. Thyroid function tests for patients with unexplained growth failure
5. Screening for gastrointestinal infection and malabsorption
6. Screening serum cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein cholesterol in children initiating highly-active antiretroviral therapy (HAART)
7. Screening for risk factors for diabetes mellitus

Management

1. Dietary/nutritional counseling
2. Increasing total caloric intake and providing nutritionally balanced caloric intake
3. Ensuring optimal efficacy of the antiretroviral (ARV) regimen
4. Multivitamin and mineral supplements
5. Anabolic agents (prescribed in consultation with a pediatric HIV specialist)
6. Referral to an endocrinologist
7. Consultation with a pediatric gastroenterologist for diet adjustment in patients with gastrointestinal infections and malabsorption
8. Management of abnormal cholesterol using dietary, behavioral, and pharmacologic interventions

Note: Guideline developers discussed the use of appetite stimulants to improve dietary intake; however, they did not offer recommendations.

MAJOR OUTCOMES CONSIDERED

- Nutritional status
- Growth, body composition, and metabolism
- Safety and efficacy of treatment
- Adverse effects of treatment

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

AIDS Institute clinical guidelines are developed by distinguished committees of clinicians and others with extensive experience providing care to people with HIV infection. Committees* meet regularly to assess current recommendations and to write and update guidelines in accordance with newly emerging clinical and research developments.

The Committees* rely on evidence to the extent possible in formulating recommendations. When data from randomized clinical trials are not available, Committees rely on developing guidelines based on consensus, balancing the use of new information with sound clinical judgment that results in recommendations that are in the best interest of patients.

* Current committees include:

- Medical Care Criteria Committee
- Committee for the Care of Children and Adolescents with HIV Infection
- Dental Standards of Care Committee
- Mental Health Committee
- Women's Health Committee
- Substance Use Committee
- Physician's Prevention Advisory Committee
- Pharmacy Committee

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

All guidelines developed by the Committee are externally peer reviewed by at least two experts in that particular area of patient care, which ensures depth and quality of the guidelines.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Clinicians should perform an annual nutritional assessment as part of routine care for all human immunodeficiency virus (HIV)-infected children

Elements of a Nutritional and Dietary Assessment

- Anthropometric data, including height, weight, and head circumference
- Biochemical data with lipid panel and albumin or pre-albumin
- Medications with nutritional side effects and interactions with foods
- Appetite and intake (24-hour recall or 3-day record)
- Family food access issues
- Social history/behavior issues/cultural practices
- Oral health
- Supplement use (including multivitamins, herbal therapies, teas)
- Activity level
- Food allergies
- Medical diagnoses, symptoms, and HIV classification
- Developmental problems

Growth Abnormalities in Perinatally HIV-Infected Children and Adolescents

Clinicians should obtain weight and height (or length) measurements every 3 to 4 months until children have reached full adult height.

Clinicians should assess children who are experiencing suboptimal growth for potentially reversible causes of poor growth.

Refer to Figure 1 in the original guideline document for causes of malnutrition.

Restoration of Growth

Energy Intake

Clinicians should carefully evaluate the dietary intake of children with growth failure or wasting syndrome, and dietary counseling should be provided by a health professional with expertise in pediatric nutrition.

Clinicians should increase total caloric intake as needed for growth, and potential causes of growth failure should be treated when possible.

Caloric intake should be nutritionally balanced: 50% to 55% of total calories from carbohydrate; 15% to 20% from protein; and 20% to 30% from fat (with less than 10% of total calories as saturated fatty acids).

Refer to Table 2 in the original guideline document for information on common antiretroviral (ARV) side effects that may affect appetite and nutrition.

Viral Suppression

Clinicians should assess the ARV regimen of patients with poor growth and high viral load to ensure optimal efficacy of the ARV regimen.

Micronutrients

Clinicians should prescribe multivitamin and mineral supplements for HIV-infected children with growth problems but should be careful of the potential for overdose.

Clinicians should ensure that any micronutrient supplements that are used conform to the specific recommended dietary allowances (RDA) for age.

The clinician should obtain a history of use of over-the-counter supplements and herbal supplements.

Anabolic Agents

Anabolic agents should only be prescribed for children in consultation with a pediatric HIV specialist.

Neuroendocrine Disorders and Growth

In patients with unexplained growth failure, clinicians should obtain thyroid function tests.

Clinicians should refer patients to an endocrinologist when growth failure remains unexplained after initial evaluation or when the evaluation suggests an endocrine abnormality.

Association of Growth Abnormalities with Gastrointestinal Infections and Malabsorption

Clinicians should carefully screen HIV-infected children with poor growth for gastrointestinal infection and malabsorption.

When lactose and fat intolerance is suspected, the clinician should consult with a pediatric gastroenterologist for screening and diet adjustment.

Lipodystrophy and Abnormalities of Lipid Metabolism

Clinicians should screen serum cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein in HIV-infected children initiating highly-active

antiretroviral therapy (HAART) 3 to 6 months after initiation and approximately every 6 months thereafter. Abnormal results warrant repeat studies performed in the fasting state.

Refer to Table 3 in the original guideline document for classification of cholesterol levels in children and to the Table below for information on management of hypercholesterolemia in HIV-infected children and adolescents.

Management of HIV-infected Children with Abnormal Cholesterol

Clinicians should use dietary and behavioral interventions to manage HIV-infected children and adolescents with abnormal cholesterol. Monitoring and dietary management should be in accordance with the guidelines published by the American Academy of Pediatrics (for adolescents, the Adult Acquired Immunodeficiency Syndrome [AIDS] Clinical Trials Group Preliminary Guidelines).

Clinicians should consider the use of pharmacologic interventions for patients with markedly abnormal cholesterol; however, there is the potential for drug-drug interactions, particularly between ARV agents and bile acid sequestering agents.

Clinicians should refer HIV-infected children with borderline or high cholesterol to a pediatric nutritionist or dietitian.

Table: Management of Hypercholesterolemia in HIV-Infected Children and Adolescents

Fasting Low-Density Lipoprotein (LDL) Cholesterol Level (mg/dL)	Management
Acceptable LDL <110	• Education on healthy eating and on risk factors for coronary artery disease (CAD) • Repeat lipid panel in 1 year
Borderline LDL=110-129	• Education on risk factors for CAD • Initiate the American Heart

Fasting Low-Density Lipoprotein (LDL) Cholesterol Level (mg/dL)	Management
	Association Step-One diet (refer to Appendix E in the original guideline document) • Re-evaluate in 1 year
High LDL ≥130	• Examine for secondary causes of CAD, including renal, liver, and familial diseases • Screen family members for CAD • Initiate Step-One diet (refer to Appendix E in the original guideline document) • Follow up in 3 months. If still high, then initiate Step-Two diet (refer to Appendix E in the original guideline document)

Abnormalities of Glucose Metabolism

Clinicians should screen for risk factors for diabetes mellitus, including obesity and family history.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of disturbances in growth, body composition, and metabolism in human immunodeficiency virus (HIV)-infected children and adolescents

POTENTIAL HARMS

Adverse Effects of Medications

Micronutrient excess may cause harm:

- *Iron* overload is associated with more rapid human immunodeficiency virus (HIV) progression and may also contribute to risk of opportunistic infection and malignancy.
- *Antioxidant vitamins (vitamins A, E, C, and beta-carotene*) and *vitamin D* may be harmful when taken in excess.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The AIDS Institute's Office of the Medical Director directly oversees the development, publication, dissemination and implementation of clinical practice guidelines, in collaboration with The Johns Hopkins University, Division of Infectious Diseases. These guidelines address the medical management of adults, adolescents and children with HIV infection; primary and secondary prevention in medical settings; and include informational brochures for care providers and the public.

Guidelines Dissemination

Guidelines are disseminated to clinicians, support service providers and consumers through mass mailings and numerous AIDS Institute-sponsored educational programs. Distribution methods include the HIV Clinical Resource website, the Clinical Education Initiative, the AIDS Educational Training Centers (AETC) and the HIV/AIDS Materials Initiative. Printed copies of clinical guidelines are available for order from the New York State Department of Health (NYSDOH) Distribution Center for providers who lack internet access.

Guidelines Implementation

The HIV Clinical Guidelines Program works with other programs in the AIDS Institute to promote adoption of guidelines. Clinicians, for example, are targeted through the Clinical Education Initiative (CEI) and the AETC. The CEI provides tailored educational programming on site for health care providers on important topics in HIV care, including those addressed by the HIV Clinical Guidelines Program. The AETC provides conferences, grand rounds and other programs that cover topics contained in AIDS Institute guidelines.

Support service providers are targeted through the HIV Education and Training initiative which provides training on important HIV topics to non-physician health and human services providers. Education is carried out across the State as well as through video conferencing and audio conferencing.

The HIV Clinical Guidelines Program also works in a coordinated manner with the HIV Quality of Care Program to promote implementation of HIV guidelines in New York State. By developing quality indicators based on the guidelines, the AIDS Institute has created a mechanism for measurement of performance that allows providers and consumers to know to what extent specific guidelines have been implemented.

Finally, best practices booklets are developed through the HIV Clinical Guidelines Program. These contain practical solutions to common problems related to access, delivery or coordination of care, in an effort to ensure that HIV guidelines are implemented and that patients receive the highest level of HIV care possible.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 (revised 2007 Nov)

GUIDELINE DEVELOPER(S)

New York State Department of Health - State/Local Government Agency [U.S.]

SOURCE(S) OF FUNDING

New York State Department of Health

GUIDELINE COMMITTEE

Medical Care Criteria Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Chair: Jessica E Justman, MD, Columbia University, New York, New York

Vice-Chair: Barry S Zingman, MD, Montefiore Medical Center, Bronx, New York

Members: Judith A Aberg, MD, New York University School of Medicine, New York, New York; Bruce D Agins, MD, MPH, New York State Department of Health AIDS Institute, New York, New York; Barbara H Chaffee, MD, MPH, Binghamton Family Care Center, Binghamton, New York; Steven M Fine, MD, PhD, University of Rochester Medical Center, Rochester, New York; Barbara E Johnston, MD, Saint Vincent's-Manhattan Comprehensive HIV Center, New York, New York; Jason M Leider, MD, PhD, North Bronx Healthcare Network of Jacobi and North Central Bronx Hospitals, Bronx, New York; Joseph P McGowan, MD, FACP, Center for AIDS Research & Treatment, North Shore University Hospital, Manhasset, New York; Samuel T Merrick, MD, NewYork-Presbyterian Hospital/Weill Cornell Medical Center, New York, New York; Rona M Vail, MD, Callen-Lorde Community Health Center, New York, New York

Liaisons: Sheldon T Brown, MD, Liaison to the Department of Veterans Affairs Medical Center, Bronx Veteran Affairs Medical Center, Bronx, New York; Douglas G Fish, MD, Liaison to the New York State Department of Corrections, Albany Medical College, Albany, New York; Peter G Gordon, MD, Liaison to the HIV Quality of Care Advisory Committee, Columbia University College of Physicians and Surgeons, New York, New York; Fabienne Laraque, MD, MPH, Liaison to the New York City Department of Health and Mental Hygiene, Treatment and Housing

Bureau of HIV/AIDS Prevention and Control, New York, New York; Joseph R Masci, MD, Liaison to New York City Health and Hospitals Corporation, Elmhurst Hospital Center, Elmhurst, New York

AIDS Institute Staff Physician: Charles J Gonzalez, MD, New York State Department of Health AIDS Institute, New York, New York

Principal Investigator: John G Bartlett, MD, the Johns Hopkins University, Baltimore, Maryland

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the New York State Department of Health AIDS Institute Web site.

AVAILABILITY OF COMPANION DOCUMENTS

This guideline is available as a Personal Digital Assistant (PDA) download from the New York State Department of Health AIDS Institute Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 13, 2005. This NGC summary was updated by ECRI Institute on June 26, 2008.

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